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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,061	09/24/2003	William S. Eaton	200207971	5094
22879 7590 09/27/2007 HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			EXAMINER QIN, YIXING	
			ART UNIT 2625	PAPER NUMBER
			MAIL DATE 09/27/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/670,061	Applicant(s) EATON, WILLIAM S.	
	Examiner Yixing Qin	Art Unit 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9/24/03, 2/3/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

I. Claims 1-24 rejected under 35 U.S.C. 102(b) as being anticipated by Barbour et al (U.S. Patent No. 6,318,828)

Regarding claims 1, 13, Barbour discloses a driver circuit for driving simultaneously a variable number of firing resistors for a printhead, the driver circuit comprising:

a drive circuit for supplying firing pulses for firing the variable number of firing resistors; (Fig. 2. 1b – firing controller 130)

a circuit for adjusting a magnitude of a voltage or a current of said drive signal in dependence on the variable number of firing resistors to be fired simultaneously. (column 25, lines 30-63 – this section describes the proper amount of voltage to deliver to the resistors. Also see Fig. 1b, item 124)

Regarding claims 2, 14, Barbour discloses the driver circuit of claim 1, wherein said drive circuit is a voltage source, and said circuit adjusts a voltage magnitude of

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said drive signal. (Fig. 1b, and column 5, lines 12-40)

Regarding claims 3, 15, Barbour discloses the driver circuit of claim 2, wherein said circuit adjusts the voltage magnitude in dependence on said variable number of firing resistors being simultaneously fired. (column 28, lines 32-65 – this section describes the variation in voltage depending on the number of resistors fired.)

Regarding claims 4, 16, Barbour discloses the driver circuit of claim 3, wherein said circuit provides an increased voltage magnitude for larger variable numbers. (column 28, line 45-65)

Regarding claims 5, 17, Barbour discloses the driver circuit of claim 2, wherein said drive circuit supplies a voltage of a predetermined magnitude, and said circuit applies an offset voltage dependent on said variable number of firing resistors. (column 29, lines 39-47 – the margin of safety is an offset set, so that the resistors are properly fired).

Regarding claims 6, 18, Barbour discloses the driver circuit of claim 5, wherein said offset voltage is inversely proportional to the variable number of firing resistors. (Fig. 27, and column 29, line 62 – column 30, line 11)

Regarding claims 7, 19, Barbour discloses the driver circuit of claim 2, wherein said offset voltage is a monotonically increasing function of said variable number of firing resistors. (Fig. 27)

Regarding claims 8, 11, Barbour discloses in a printhead control apparatus comprising a driver circuit for providing energy pulses to a set of firing resistor loads connected in parallel, each load having a switch for connecting the load to the driver circuit so that a variable number of the loads can be simultaneously connected to the driver circuit to receive energy pulses during a pulse cycle (Fig. 4), a method for maintaining nominally constant energy in an individual load (Fig. 27) , the method comprising:

determining the variable number of the loads to be simultaneously connected to an energy source for the pulse cycle; (column 28 , lines 32-57 – one example giving is when all resistors need to be fired)

adjusting a voltage magnitude or current magnitude of the energy pulse in dependence on the variable number, so that the voltage magnitude or current magnitude increases as the variable number increases to maintain a nominally constant energy applied to the load independent of the variable number. (Fig. 27, and column 29, line 62 – column 30, line 11)

Regarding claims 9, Barbour discloses the method of claim 8, further comprising: adjusting a pulse width of the energy pulse in dependence on the variable

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number, so that the pulse width increases as the variable number increases. (column 28, lines 45-57)

Regarding claims 10, 12, Barbour discloses the method of claim 8, wherein said energy source is a voltage source for providing a supply voltage having a constant source voltage magnitude, and wherein:

said adjusting a voltage magnitude comprises applying a voltage offset to said constant source voltage magnitude, and wherein a value of said voltage offset is inversely proportional to the variable number. (Fig. 27, and column 29, line 62 – column 30, line 11 and column 29, lines 39-47 – the margin of safety is an offset set, so that the resistors are properly fired).

Regarding claims 20, 23, Barbour discloses a driver circuit for firing simultaneously a variable number of firing resistors for associated nozzles in a printhead, the driver circuit comprising:

an energy source for providing electrical power to fire said firing resistors; (column 25, lines 30-63 – this section describes the proper amount of voltage to deliver to the resistors. Also see Fig. 1b, item 124)

a nozzle counter for determining a nozzle count of the variable number of nozzles whose resistors are to be fired in a given firing cycle; (column 20, lines 49-64)

a programmable offset generator for generating an output control voltage or current dependent on said nozzle count; (column 29, lines 39-47 – the margin of safety is an offset set, so that the resistors are properly fired)

a drive circuit having an output connected to a circuit output terminal for connection to the printhead, said drive circuit for selectively applying variable voltage or current from said energy source to the circuit output in dependence on said output control voltage or current. (Fig. 2, 1b – firing controller 130 and Fig. 27, and column 29, line 62 – column 30, line 11)

Regarding claim 21, Barbour discloses the circuit of claim 20, wherein said energy source is a voltage source, and said programmable offset generator generates an output control voltage of a magnitude dependent on said nozzle value. (Fig. 1b, and column 5, lines 12-40)

Regarding claims 22, 24, Barbour discloses the circuit of claim 21, wherein said output control voltage value is proportional to the variable number of firing resistors. (Fig. 27, and column 29, line 62 – column 30, line 11)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yixing Qin whose telephone number is (571)272-7381. The examiner can normally be reached on M-F 9:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler Lamb can be reached on (571)272-7406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



YQ



TWYLER LAMB
SUPERVISORY PATENT EXAMINER